



1

SEQUENCE LISTING

<110> Yamamoto, Hiroaki
Onodera, Keiko
Tani, Yoshiki

<120> NOVEL (R)-2,3-BUTANEDIOL DEHYDROGENASE

<130> 06501-092001

<140> 10/020,674
<141> 2001-10-30

<150> JP 2000-333363
<151> 2000-10-31

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taa
1143

<210> 2
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<212> PRT
<213> Pichia angusta

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1 5 10 15

Thr Val Pro Glu Pro Glu Ile Lys Asn Pro Asn Asp Val Lys Ile Lys
 20 25 30
 Val Ser Tyr Cys Gly Ile Cys Gly Thr Asp Leu Lys Glu Phe Thr Tyr
 35 40 45
 Ser Gly Gly Pro Val Phe Phe Pro Lys Gln Gly Thr Lys Asp Lys Ile
 50 55 60
 Ser Gly Tyr Glu Leu Pro Leu Cys Pro Gly His Glu Phe Ser Gly Thr
 65 70 75 80
 Val Val Glu Val Gly Ser Gly Val Thr Ser Val Lys Pro Gly Asp Arg
 85 90 95
 Val Ala Val Glu Ala Thr Ser His Cys Ser Asp Arg Ser Arg Tyr Lys
 100 105 110
 Asp Thr Val Ala Gln Asp Leu Gly Leu Cys Met Ala Cys Gln Ser Gly
 115 120 125
 Ser Pro Asn Cys Cys Ala Ser Leu Ser Phe Cys Gly Leu Gly Gly Ala
 130 135 140
 Ser Gly Gly Phe Ala Glu Tyr Val Val Tyr Gly Glu Asp His Met Val
 145 150 155 160
 Lys Leu Pro Asp Ser Ile Pro Asp Asp Ile Gly Ala Leu Val Glu Pro
 165 170 175
 Ile Ser Val Ala Trp His Ala Val Glu Arg Ala Arg Phe Gln Pro Gly
 180 185 190
 Gln Thr Ala Leu Val Leu Gly Gly Pro Ile Gly Leu Ala Thr Ile
 195 200 205
 Leu Ala Leu Gln Gly His His Ala Gly Lys Ile Val Cys Ser Glu Pro
 210 215 220
 Ala Leu Ile Arg Arg Gln Phe Ala Lys Glu Leu Gly Ala Glu Val Phe
 225 230 235 240
 Asp Pro Ser Thr Cys Asp Asp Ala Asn Ala Val Leu Lys Ala Met Val
 245 250 255
 Pro Glu Asn Glu Gly Phe His Ala Ala Phe Asp Cys Ser Gly Val Pro
 260 265 270
 Gln Thr Phe Thr Thr Ser Ile Val Ala Thr Gly Pro Ser Gly Ile Ala
 275 280 285
 Val Asn Val Ala Val Trp Gly Asp His Pro Ile Gly Phe Met Pro Met
 290 295 300
 Ser Leu Thr Tyr Gln Glu Lys Tyr Ala Thr Gly Ser Met Cys Tyr Thr
 305 310 315 320
 Val Lys Asp Phe Gln Glu Val Val Lys Ala Leu Glu Asp Gly Leu Ile
 325 330 335
 Ser Leu Asp Lys Ala Arg Lys Met Ile Thr Gly Lys Val His Leu Lys
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 Asp Gly Val Glu Lys Gly Phe Lys Gln Leu Ile Glu His Lys Glu Asn
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 Asn Val Lys Ile Leu Val Thr Pro Asn Glu Val Ser
 370 375 380

<210> 3
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 <212> PRT
 <213> Pichia angusta

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 1 5 10

<210> 4

<211> 21
<212> PRT
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<210> 5
<211> 6
<212> PRT
<213> Pichia angusta

<400> 5
Phe His Ala Ala Phe Asp
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<210> 6
<211> 20
<212> DNA
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<222> 6, 9, 15, 18
<223> n = a, c, g, or t

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<210> 7
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<213> Artificial Sequence

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<221> misc_feature
<222> 9, 12
<223> n = a, c, g, or t

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gcactgggtt agcctatttc tggtgcctgg catgctgtt aacgcgttag attccagcct	300
ggtcagacgg ccctgggtt tggaggaggt cctatcgcc ttgccccat tcttgctctg	360
caaggccatc atgcgggcaa aattgtgtt tccgagccgg ctttgcatac aagacagttt	420
gcaaggaaac tgggcgctga agtgttcgtat ctttgcatac gtgacgacgc aaatgtgtt	480
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<210> 9

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

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26

<210> 10

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially synthesized primer sequence

<400> 10

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27

<210> 11

<211> 107

<212> DNA

<213> Pichia angusta

<400> 11

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agagtgcac ttgaagctac gtcgcattgc tccgacagat cgcatgc

60

107

<210> 12

<211> 706

<212> DNA

<213> Pichia angusta

<400> 12

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aatcgccgtc aatgtggccg ttggggaga ccacccaatt ggattcatgc caatgtctct
gacttaccag gagaataacg ctaccggctc catgtgtac accgtcaagg acttccagga
agttgtcaag gccttggaaat atgttctcat atctttggac aaagcgcgcga agatgattac
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ggagaacaat gtcaagatcc tggtgacgcc gaacgagggtt tcctaactaa taatatacat
acatcataca tatgtatgtc cttagagccaa gacttgcgcga ttagaaaaaa tagctggtag

60

120

180

240

300

360

420

480

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tgtttcttga	gcaggaggag	atactagagc	aatttcaaaa	catctccaaat	tgccaaatcc	660
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<210> 13
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<212> DNA
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gaatttccg	cgctaattca	gtcaacggta	acaagaccag	gatggagtt	aatatttct	180
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ctgtataat	gagtgaccag	atttattacc	gaaccttagcc	agcccccgggt	tttttacaca	540
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<220>
<223> Artificially synthesized primer sequence

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<210> 15
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<212> DNA
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cggttcctga	accggagatc	aagaatccca	acgtatgtca	gatcaaagtc	agctatttgt	300
aatctgtgg	cacggactt	aaagaattca	catattctgg	aggtccgtt	ttttcccta	360
aacaaggcac	caaggacaag	atttcggat	acgaacttcc	tctctgtcct	ggacatgaat	420
ttagcggAAC	ggtgttcgag	gttggctctg	gtgtcacaag	tgtgaaacct	ggtgacagag	480
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<211> 30
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<220>
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<212> DNA
<213> Artificial Sequence

<220>
<223> Artificially synthesized primer sequence

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